Science and Technology Part 1

SSC Board Exam March 2027 – Practice Paper

Practice Question Paper

Time: 2 hours **Max. Marks: 40**

(1) All questions are compulsory.
(2) Use of a calculator is not allowed.
(3) The numbers to the right of the questions indicate full marks.
(4) In case of MCQs [Q.1(A)], only the first attempt will be evaluated and will be given credit.
(5) For each MCQ, the correct answer must be written along with its alphabet, e.g. (A) ..... / (B) .....
(6) Scientifically correct, labelled diagrams should be drawn wherever necessary.

Q.1 (A) Choose the correct alternative and write its alphabet. **[5]**

(i) If the distance between two bodies is doubled, the gravitational force between them becomes _____ of the original force F.

(A) 2F (B) F/2
(C) F/4 (D) 4F

(ii) An element has the electronic configuration 2, 8, 2. Its position in the modern periodic table is _____.

(A) Group 3, Period 2 (B) Group 2, Period 3
(C) Group 12, Period 2 (D) Group 2, Period 2

(iii) Water has its maximum density at _____.

(A) 0 °C (B) 100 °C
(C) –4 °C (D) 4 °C

(iv) The power of a convex lens of focal length 50 cm is _____.

(A) +2 D (B) –2 D
(C) +0.5 D (D) +50 D

(v) The functional group present in ethanoic acid (vinegar) is _____.

(A) –OH (B) –CHO
(C) –COOH (D) >C=O

Q.1 (B) Answer the following. **[5]**

(i) Find the odd one out: Lithium, Sodium, Magnesium, Potassium

(ii) Complete the correlation:
Myopia : Concave lens :: Hypermetropia : _____

(iii) Match the column:
Column A: Electric fuse wire
Column B: (a) Tungsten (b) Alloy of lead and tin (c) Nichrome

(iv) State whether the following statement is true or false:
The escape velocity from the surface of the Earth is about 11.2 km/s.

(v) Write the name: The process of heating a carbonate ore strongly in a limited supply of air or in the absence of air.

Q.2 (A) Give scientific reasons. (Any two) **[4]**

(i) Tungsten metal is used to make the filament of an electric bulb.

(ii) In very cold regions, water pipes sometimes burst in winter.

(iii) Packets of potato chips are filled with nitrogen gas.

Q.2 (B) Answer the following. (Any three) **[6]**

(i) An astronaut has a mass of 60 kg on the Earth. Find his weight on the Earth and on the Moon. (g on Earth = 9.8 m/s^2, g on Moon = g/6)

(ii) Write the balanced chemical equation, with physical states, for the reaction of zinc granules with dilute sulphuric acid, and identify the type of reaction.

(iii) State the laws of refraction of light.

(iv) State Fleming's right hand rule. Name one device that works on electromagnetic induction.

(v) Lithium, sodium and potassium form a Döbereiner's triad. The atomic masses of lithium and potassium are 6.9 and 39.1 respectively. Find the atomic mass of sodium.

Q.3 Answer the following. (Any five) **[15]**

(i) A stone is dropped from the top of a building in Pune that is 19.6 m high. (g = 9.8 m/s^2)
(a) How long does it take to reach the ground?
(b) With what velocity does it hit the ground?
(c) What distance does it fall in the first second?

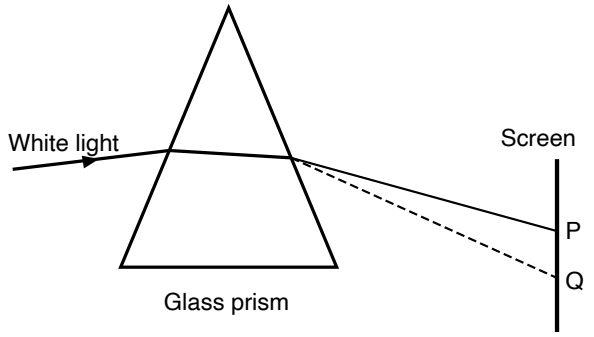
(ii) An electric iron of resistance 55 Ω is connected to a 220 V supply.
(a) Find the current through it.
(b) Find its power.
(c) How many units of electrical energy will it consume in 2 hours?

(iii) An object 3 cm high is placed 12 cm in front of a convex lens of focal length 8 cm. Find the position, nature and height of the image. Draw the ray diagram.

(iv) Zinc is extracted from zinc blende (ZnS) and calamine ($ZnCO_3$). Write balanced chemical equations for:
(a) Roasting of zinc blende
(b) Calcination of calamine
(c) Reduction of zinc oxide with carbon

(v) Ethanoic acid reacts with ethanol in the presence of concentrated sulphuric acid.
(a) Write the chemical equation.
(b) Name the reaction and the product formed.
(c) Give one use of the product.

(vi) Observe the figure and answer the questions.
(a) Name the phenomenon shown.
(b) Which colours reach points P and Q on the screen?
(c) Why do different colours bend through different angles?



(vii) Explain the three types of satellite orbits on the basis of their height above the Earth's surface. Give one use of satellites in each orbit.

(viii) How much heat is needed to convert 50 g of ice at 0 °C into water at 20 °C?
(Specific latent heat of fusion of ice = 80 cal/g, specific heat of water = 1 cal/g °C)

Q.4 Answer the following in detail. (Any one) **[5]**

(i) Read the information and answer the questions.
Five elements A, B, C, D and E have atomic numbers 3, 11, 12, 17 and 18 respectively. (A, B, C, D, E are not the chemical symbols.)
(a) Which two elements belong to the same group? Why?
(b) Which element is a noble gas?
(c) Write the electronic configuration and valency of D.
(d) Out of B, C and D, which has the largest atomic radius? Why?
(e) Write the molecular formula of the compound formed between C and D.

(ii) A 13-year-old student can clearly see the vehicles on a distant road, but he cannot read his textbook clearly when it is held close to his eyes.
(a) Name the defect of vision.
(b) Where is the image of a nearby object formed in his eye?
(c) Give two possible causes of this defect.
(d) What type of lens is used to correct it?
(e) Draw labelled diagrams showing the defect and its correction.

All the best for your exam!